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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,464	10/14/2004	Rishi Raj	013743.0104PTUS	4661

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EXAMINER

KOSLOW, CAROL M

ART UNIT	PAPER NUMBER
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1755

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/511,464

Applicant(s)

RAJ ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/14/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

Applicant's election without traverse of Group II, claims 7-19, in the response of 15 November 2006 is acknowledged.

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 11, 13 and 18 of this application.

There is no teaching in the provisional application that the primary precursor does not have any temperature to make it viscous for drawing fiber. The provisional application teaches the primary precursor has a first temperature to make it viscous for drawing fiber.

Thus the effective filing date of the subject matter of claim 13 is 28 April 2003. The effective filing date of the subject matter of claims 7-12 and 14-19 is 27 April 2002.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification does not teach the subject matter of claims 11 and 18, nor that the primary precursor does not have any temperature to make it viscous for drawing fiber, as claimed in claim 13.

Claims 11 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims are indefinite since it is not clear as to what elements are encompassed by the phrase "groups III and IV". It is unclear if the atoms are of Group IIIA and Group IVA, Group IIIB and Group IVB, Group IIIA and Group IVB, Group IIIB and Group IVA or Group IIIA, Group IIIA, Group IVA and Group IVB. If it is one of Group IIIA and Group IVA, Group

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IIIB and Group IVB, Group IIIA and Group IVB or Group IIIB and Group IVA, then applicants needs to indicate what Periodic Table applicants are using to select the Groups from, the CAS Periodic Table or IUPAC Periodic Table.

Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

There is a question of the process of claim 7 can be practiced if one of the claimed component cannot be drawn into a fiber. Applicants need to explain how heating a mixture of a material that cannot be drawn and one that can be drawn allows for the mixture to be drawn.

Claims 7-13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for producing a composite fiber of nanoscale oxide particles dispersed in a non-oxide silicon compound matrix by mixing a organosilicon polymer and a metal alkoxide as the precursor for the oxide, heat treating the mixture to form a viscous composition, drawing the viscous composition into a fiber, thermosetting the drawn fiber into a rigid state and pyrolyzing the resulting fiber in nitrogen or argon, does not reasonably provide enablement for producing a composite fiber of nanoscale oxide particles dispersed in a non-oxide compound matrix by mixing precursors for the oxide and non-oxide ceramics, heat treating the mixture to form a viscous composition, drawing the viscous composition into a fiber, thermosetting the drawn fiber into a rigid state and pyrolyzing the resulting fiber. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

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The claims recite producing a composite fiber of nanoscale oxide particles dispersed in a non-oxide compound matrix by mixing precursors for the oxide and non-oxide ceramics, heat treating the mixture to form a viscous composition, drawing the viscous composition into a fiber, thermosetting the drawn fiber into a rigid state and pyrolyzing the resulting fiber. This encompasses any non-oxide as the matrix or the fiber, any precursor composition for the non-oxide and oxide and any pyrolyzing atmosphere. However, the specification only teaches the use of organosilicon polymers and alkoxides as the precursors, silicon based non-oxides and pyrolyzing the resulting fiber in nitrogen or argon. Such a limited disclosure does not support the breadth of the instant claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7, 9, 11, 12, 14-16, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 4,663,229.

This reference teaches a fiber comprising a nanophase distribution of amorphous silica and zirconia within an amorphous non-oxide ceramic. The fiber is produced by mixing an organosilicon polymer and a zirconium organometallic polymer, heating the mixture to a viscous state, drawing the viscous material into a fiber, infusing or thermosetting the fiber into a rigid state and pyrolyzing the infused fiber. The reference teaches the claimed process and fiber.

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Claims 14, 18 and 19 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 01/38616.

U.S. patent 6,582,650 is the national stage application for WO 01/38616 and thus is the translation for WO 01/38616.

This reference teaches a ceramic fiber composed of a silicon carbide ceramic containing a dispersion of sol, which are nanoscale, oxide particles, such as zirconia. The reference teaches the claimed fiber.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,663,229.

The reference teaches the infusing or thermosetting temperature is in the range of 50-400°C, overlaps the claimed range. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference teaches the claimed process.

Claims 14 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5,350,719.

This reference teaches a ceramic material, that can be in the form of a fiber (col. 4, line 35) composed of a nitride matrix ceramic containing a dispersion of zirconia particles having a

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size of about 0.1-5 microns. This size range includes nanoscale particles of about 0.1 to less than 1 micron. The matrix material is produced by pyrolyzing a titanium containing disilazane. Thus it appears the nitride matrix ceramic contains Si, Ti, N and C since the silicon and carbon atoms are not expected to be expelled during pyrolyzation. Thus the reference suggests the claimed fiber.

U.S. patent 6,777,361 is cited as of interest since it suggests the claimed fibers. U.S. patent 6,881,693 are cited as of interest since it suggests the claimed process and fibers. These references have an effective filing date after applicants' effective filing date of 27 April 2002.

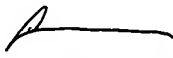
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
January 19, 2007


C. Melissa Koslow
Primary Examiner
Tech. Center 1700